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The Aggressive Behaviour in Sports Among Athletes In A Public University

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Abstract

Collegiate athletes displayed different aggressive tendencies in an off-field situation based on the sports that they play. This study was conducted to identify the level and differences of aggressive behavior among athletes in a public university in Malaysia. A total of 91 student-athletes that represented different types of sports participated in this study. The instrument used to measure the aggressive behaviour among athletes was the *Aggression Questionnaire*. Descriptive statistics were used to identify the level of aggressive behaviour and the independent *t*-test was used to analyze the differences of aggressive behaviour based on demographic factors such as gender and types of sports. The findings revealed that the level of aggressive behaviour among athletes in the university are at a low level and there is no significant differences in aggressive behaviour based on gender and types of sports. This study contributes to the literature on the aggressive behavior in the context of student-athletes in higher education institution.

Keywords: Aggressive behaviour, student athlete, off-field aggression, sport

Abstrak

Atlet kolej menunjukkan kecenderungan agresif yang berbeza dalam situasi di luar padang berdasarkan sukan yang mereka mainkan. Kajian ini dilakukan untuk mengenal pasti tahap dan perbezaan tingkah laku agresif dalam kalangan atlet di sebuah universiti awam di Malaysia. Seramai 91 pelajar-atlet yang mewakili pelbagai jenis sukan terlibat dalam kajian ini. Instrumen yang digunakan untuk mengukur tingkah laku agresif dalam kalangan atlet adalah Soal Selidik Agresif. Statistik deskriptif digunakan untuk mengenal pasti tahap tingkah laku agresif dan ujian-t bebas digunakan untuk menganalisis perbezaan tingkah laku agresif berdasarkan faktor demografi seperti jantina dan jenis sukan. Hasil kajian menunjukkan bahawa tahap tingkah laku agresif di kalangan atlet di universiti berada pada tahap yang rendah dan tidak terdapat perbezaan yang signifikan bagi tingkah laku agresif berdasarkan jantina dan jenis sukan. Kajian ini menyumbang kepada literatur mengenai tingkah laku agresif dalam konteks pelajar-atlet dalam institusi pendidikan tinggi.

Kata kunci: Tingkah laku agresif, pelajar atlet, agresif luar padang, sukan

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■1.0 INTRODUCTION

Strong, optimism, unwavering are a few of qualities that today's modern athletes possesed just as the warriors of our nation once before us back then. The only thing that made them different is most probably athletes are fortunate enough as when losing a competition does not mean losing a country as it did to our ancient warriors before. Despite that, winning the competition has become the main objective of most athletes. That being said, losing is still the least thing that they would want in any sporting events that they participated in. By all means, they have to compete in the game or sports that they play and win the game. Winning might not be a necessary thing to some people, but for athletes, winning can mean everything. From a monetary or material reward like medals, recognition, the feeling of exhilaration at being declared victorious over one's opponent, or anything that urges competitiveness, it does exist in every serious athlete (Safraoui, 2014). Therefore, by winning in the games they participated, their eagerness to do anything to win sometimes can lead to aggression in sports.

In general, aggression can be seen as unprovoked hostility or attacks on another person which are not permissible by society. Robazza and Bortoli (2007) defined aggression as an overt, harmful social interaction with the intention of causing unpleasantness or inflicting damage upon another individual. However, when it comes to sports context, aggression is necessary as the two competing teams have willingly agreed to compete against each other (Kerr, 2008). As a result, this behavior might be performed to inflict harm towards the opponent to show dissatisfaction. Aggressive behavior could be the result of negative personality traits and it has been associated with negative social interaction and because of it, the frequency of aggression has led to a great deal of academic research, but there still lack of research on this behavior especially in the context of sports participation (Keeler, 2007).

Some scholars defined aggression in athletes as a social issue that originated from a desire to win and compromise of moral reasoning (Safraoui, 2014). Aggression can take the form of physical or emotions that can be manifested whether during the competition or when in

an off-field situation. The aggressive behaviour among athletes can cause greater negative consequences whether during competition or when in an off-field situation if it fails to be controlled. In some serious cases, aggression involving sports can resulted in permanent injuries to the opponents or the people in their surroundings like the case of the famous National Basketball Association (NBA) player, that was charged with sexual assault in 2003 (Tuchman & Cabell, 2003). This case was among the cases that portrayed aggressive behaviour among athletes outside the sporting competition.

One determinant to athletes' aggression is thought to be whether or not an athlete plays a contact or non-contact sports (Safraoui, 2014). These differences between contact and non-contact athletes' aggression tendencies had been examined by a few of previous researchers (Keeler 2007; Ahmadi, Besharat, Azizi, & Larijani 2011; Lemieux, McKelvie, & Stout 2002). There are undeniable that there are certain sports in which their intrinsic characteristics of competition do allow higher level of physical contact and sanctioned physical aggression as long as it is within the written rules and laws of the games like rugby, hockey and football (Pippa Grange & Kerr, 2010). However, despite knowing that there are some sports that already portray physical aggression as its intrinsic characteristic of competition, aggressive behavior are only eagerly encouraged during sporting events and illegal when in an off-field situation (Grange & Kerr, 2011). The current study focused on the aggressive behavior performed when athletes are in an off-field situation towards their environment, family, friends or acquaintances. This study will explore the extent of athletes' aggression across a variety of collegiate sports.

It has been proven through extensive research that aggression when performed during competition can lead to injuries on the field whether towards opponents or even the fellow teammates, while other victims such as family, friends and acquaintances of these aggressive athletes are at risk for bodily and psychological harm when in an off-field situation (Grange & Kerr, 2011). According to social learning theory by Bandura and Walters (1977), aggression that was inflicted during any events,in this case the sporting events or tournament, can result in circular effects where one act of aggression leads to another. This indicated that although the aggressive acts outside of the competition can sometimes be influenced by other factors such as personal problems or physiological problems, somehow this aggressive behaviour on the field can result in a cumulative effect on athletes (Lemieux et al., 2002).

Even though much research has been conducted by past scholars, there is still not enough research that explains the differences in aggressive behaviour based on gender and types of sport especially among athletes in Malaysia. One of the local study by Shariff, Javed, Salimin, and Majid (2017) shows that aggressive behaviour exists among Malaysian's athletes, but the study only focused on the sporting catharsis and social support among athletes in school. The lack of research regarding aggressive behaviour in sports has led to this study. Therefore, in order to provide additional value and important information to literature regarding this issue, this study aims to identify the differences of aggression behavior based on genders and types of sports among athletes when they are in an off-field situation.

Research Objectives

The research objectives are as follows:

- i. To identify the level of aggressive behavior among athletes in higher education.
- ii. To identify the differences of aggressive behavior based on gender of athletes.
- iii. To identify the differences of aggressive behavior of athletes based on the type of sports.

■2.0 LITERATURE REVIEW

2.1 Aggressive Behaviour

Aggressive behaviour can be defined and understood through a few prominent theories in psychology proposed by Bandura and Walters (1977) which believed that aggression is a part of results that were caused by social learning theory. The theory stated that aggression is something that can be learned by observation or direct experience of aggressive actions along with perceived or actual approval of aggressive behaviour. It can occur through the modelling behaviour of others or even the person themselves. The Frustration-Aggression Theory by Berkowitz (1988), therefore defined aggressive behaviour classified into two aspects which are frustration and aggression. This theory emphasized that either frustration or another stimulus such as incoming threats can increase a person's arousal and anger level which increases one's readiness to aggress.

A theory by Buss and Perry (1992) also categorized aggression into four dimensions and developed an instrument to measure the dimensions. The four dimensions are physical aggression, verbal aggression, anger and hostility. The first two factors representing instrumental components, anger symbolizes physiological activation and hostility refers to the feelings of opposition and injustice. Attinà, Nicotra, Massimino, Maugeri, and Petralia (2013) defined aggression as a behavioural attitude that everyone faced with almost every day. Even though aggression is said to be owned by humans naturally, it might also be seen as a manifestation of negative desire that drives people to do harmful things to others (McCaldon, 1964). The concept of aggression varies from time to time and differs among the researchers. McCaldon (1964) also stated that the term aggression itself was used ambiguously throughout previous studies and referring to aggression as a goal-directed self-assertion with an associated implication of attack that is usually hostile and intended to destroy.

2.2 Sports Aggressiveness

In terms of aggression in sports, researchers have also linked the effect of moral reasoning on the occurrences of aggression (Shariff et al., 2017). According to Wann (2005) aggression in sports is an act that intended to cause injuries physically, verbally or psychologically towards someone as a motivation to avoid themselves from getting hurt and any acts that can inflict harm to other things in the aggressor environment. This is also supported by a few other researchers like Dinţică and Păunescu (2014) that agreed that some form of aggressiveness is needed in some sports and is considered necessary as stated in research by Epuran, Holdeviei, and Tonifa (2001) which viewed that successful athletes are not only aggressive, but are more inclined to express their aggressiveness in comparison to non-athletes.

As aggression in general might be viewed and defined as negative and immoral to the society, it is the other way believed by Ahmadi et. al (2011) that stated aggressiveness are more to the application of aggressiveness in sports context which are defined as the readiness for aggression or acceptance of and tendency towards aggressive actions. Aggression performed by athletes when they are being outside from the competition is also called off field aggression and it is as a result of playing competitive sports. There were many previous studies that either support the statement that aggression arises from sports or against it. A study on this perspective were navigated by Pappas, McKenry, and Catlett (2004) on the level of aggression hockey players utilize in their sport and personal lives proved that their off-field aggressiveness were not only resulted from the hockey culture itself, but other factors such as alcohol consumption and female objectification that contributed to off field aggression among them. Different from a research conducted by Grange and Kerr (2011), that studied elite Australian football players on their off field aggression experiences. The study showed that the athletes often feel targeted but do not instigate arguments but when provoked, it shows that a higher percentage of those interviewed responded in an aggressive manner instead of in a normal manner.

2.3 Association between Types of Sports, Gender Differences and Aggression

The differences in sport aggression, life aggression and life assertion among different genders resulted in significant gender differences found in the subscales items of life aggression (Keeler, 2007). It indicated that gender plays a big role in the aggressive behaviour displayed in every day's lives. Meanwhile, Ahmadi et al.,(2011) highlighted the relationship between dimensions of anger and aggression in contact and non-contact sports that revealed although the types of sports is a predictor factor in aggressive sport behaviour, it has no influence on the relationship between anger dimensions and aggressive behaviour. Coulomb-Cabagno and Rascle (2006) studied the players' aggression in team sports as a function of gender, competitive level and sport type and the results revealed that male players always display more aggressive behaviours than female players despite the sports, competitive level or nature of observed aggression. Previous study by Safraoui (2014) highlighted the physical, emotional, and competitive aggression tendencies comparing collegiate athletes that participated in different types of sports. The study shows that significant differences existed between athletes in contact and non-contact sports. Sofia and Cruz (2017) highlighted the patterns of association between aggression-related variables and the effect of type of sports, competitive categories and success level. The study revealed that there was a clear link between the anger, aggression and anti-social behaviour, as well as the importance of provocation and anger rumination in aggressive behaviour. Based upon the previous researchers' evidence, it is predicted that there are differences in aggressive behaviour among athletes according to their genders and types of sports. Therefore, the hypotheses of this research are as follow:

Hypothesis 1: There is a significant difference of aggressive behaviour based on gender.

Hypothesis 2: There is a significant difference of aggressive behaviour based on types of sports.

■3.0 METHODOLOGY

3.1 Research Design

In the present study, the research design used is cross-sectional design with descriptive research type and quantitative data approach. Cross sectional study according to Kumar (2014) is also known as one-shot kind of studies that are best to be used in obtaining an overall picture of the whole study. Cross sectional study was used in this research as this research will be only carried out under a limited short time. This study also uses descriptive study which was used to identify the differences and level of aggressive behavior among athletes according to their gender and types of sports.

3.2 Population and Sampling

Trobia and Lavrakas (2008) had defined a population in a research as the entire set of units for which the survey data are to be used in order for the inference to be made. The population of the study were student-athletes that are representing a public university in various types of sports. These athletes were still actively participating in sports competition in any levels of competition in their respective sports including university, state or international. The total number of respondents participated in this study were 91 athletes. The sampling method used was the disproportionate stratified sampling in which the samples were stratified grouped into types of sports in the university which are contact (rugby, hockey, silat and handball) and non-contact sports (volleyball, badminton, kayak and softball). The probability sampling method ensures that each element in the population has an equal chance of being selected in the study, so that the findings can be generalized to the population under study (Kumar, 2014)

3.3 Measures

The instrument used in the study was adopted from a well-known instrument used to evaluate the aggressive behaviour among athletes, the Buss and Perry Aggression Questionnaire (BPAQ) (Buss & Perry, 1992). BPAQ consists of 29 items which are divided into four factors or dimensions which are; Physical Aggression (9 items), Verbal Aggression (5 items), Anger (7 items), and Hostility (8 items). Items of this instrument are anchored by a 4- point scale starting from 1"strongly disagree" to 4= "strongly agree". These items indicated how uncharacteristic or characteristic each of the statements in the questionnaire describing respondents. This instrument has a high internal reliability with Cronbach's alpha value of 0.89.

Data collection was carried out via survey method with online form approach. Data analysis was conducted using descriptive and inferential statistics through Statistical Package for the Social Sciences (SPSS). The independent t-test analysis is conducted to study the differences of aggressive behaviour among athletes in a public university according to gender and types of sports they represented.

■4.0 RESEARCH FINDINGS

4.1 Demographic Analysis

Majority respondents of this study were female athletes (67.0%) followed by male athletes (33.0%). Besides, all of the participants have been categorized into 4 age groups respectively in which 19 participants (20.9%) are between 18 to 20 years old and 61 participants (67.0%) are aged between 21 to 23 years old. There are 8 participants (8.8%) who fall in the range of 24 to 26 years old and only 3 participants (3.3%) are above 26 years old. For types of sports, there were a higher number of respondents from contact sports (54.9%) compared to respondents from non-contact sports (45.1%). Most of the respondents highest achievement were from university level (73.6%), 17 participants (18.7%) are at state level and only 7 participants (7.7%) representing the international level.

4.2 Level of Aggressive Behaviour

Table 1 illustrates the overall mean score of aggressive behavior of athletes in a public university according to the dimensions of aggressive behavior by using descriptive method. The range of mean value was divided into three levels: low (1.00-1.9), medium (2.00-2.9) and high (3.00-4). The highest mean value scored by hostility aspects of aggressive behavior (M= 1.484) and the lowest is the verbal aggression and anger aspects of aggressive behaviour (M=1.418). Overall, the mean value of aggressive behavior among student athletes is (M=1.495). The low mean score indicated that most student athletes have a low level of aggressive behavior.

Aspect	Mean	SD		Level	
			Low f(%)	Moderate f(%)	High f(%)
Physical aggression	1.374	0.487	57 (62.6%)	34 (37.4%)	0
Verbal aggression	1.418	0.559	56 (61.5%)	32 (35.2%)	(3.3%)
Anger	1.802	0.582	26 (28.6%)	57 (62.6%)	8 (8.8%)
Hostility	1.484	0.545	57 (62.6%)	31 (34.1%)	(3.3%)

Table 1 Level of aggressive behaviour

4.3 Differences of Aggressive Behaviour based on Gender

Table 2 illustrates the findings on the differences of aggressive behavior based on gender. The differences between athletes' gender and aggressive behavior was measured using an independent t-test to obtain the results. The findings showed that there was no significant difference of the aggressive behaviour between male (M=2.1, SD=0.463) and female (M=2.00, SD=0.386) conditions t(89)=1.062, p>0.05. These results might suggest that the aggressive behaviour performed by student athletes did not differ much in comparison of male and female athletes.

Gender	N	Mean	Std Dev	t	Sig. Value	
/Iale	30	2.100	0.463	1.062	0.291	
emale	61	2.002	0.386			

Table 2 Differences of aggressive behaviour based on gender

4.4 Differences of Aggressive Behaviour based on Types of Sports

Table 3 presents the differences of aggressive behaviour based on types of sports. The results obtained by using independent sample t-test shows that there was no significant differences in the aggressive behaviour performed in contact sports (M=2.10, SD=0.410) and non-contact sports (M=1.95, SD=0.404) conditions; t(89)=1.854, p>0.05. This indicates that whether in contact sports or non-contact sports, athletes in a higher education showed no significant differences in performing aggressive behaviour when in an off-field situation.

Table 3 Differences of aggressive behaviour based on types of sports

Types of Sports	N	Mean	Std Dev	t	Sig. Value
Contact	50	2.139	0.407	1.673	0.067
Non-Contact	41	1.999	0.382		

■5.0 DISCUSSIONS, LIMITATIONS AND RECOMMENDATION

5.1 Discussion on the Level of Aggressive Behaviour among Athletes

This study found that the level of aggressive behavior possessed by athletes in a higher education was at low level. The findings revealed that, majority of the athletes showed a low level of aggressive behavior in all four dimensions of aggressive behavior measured consisted of physical aggression, verbal aggression, anger and hostility. At the beginning of this research, it was believed that the aggressive behavior performed by athletes will be at a moderate to high level. These results were contradictory with previous study conducted by Rahimizadeh, Arabnarmi, Mizany, Shahbazi, and Bidgoli (2011) that showed a high level of aggressive behaviour among collegiate athletes. These contradicted results however are in line with previous study by Nixon (1997) who proved that in certain dimensions of aggressiveness, athletes have a lack tendency to behave aggressively outside sports. This statement supported the low level of aggressive behaviour in the present study. This result might also reveal that athletes in higher education only inflicted aggressive behaviour within the sporting context or in the sports competition and be able to control their aggressive tendency on the outside of the competition. It was also proved by Linville and Huebner (2005) that concluded, the acts of violent activities were not affected by the sport team involvement in their study.

Moreover, the other indicator of low aggressive behaviour among athletes might probably be caused by the maturity of the respondents and also the influence of religion and culture on their behavior which increase their awareness of the negative effect of aggressive behavior. They are believed to be matured in differentiating what is right and wrong for them and thus, avoiding any actions that could get them punished or charged by the university's rules. This statement comes in accordance with a study conducted by Abdullah, Ortega, Ahmad, and Ghazali (2015) on measuring the level of aggressive and delinquent behaviour among youth. The study found that their respondents in the age range of 21 to 30 years old tended to score a low level of aggressive and delinquency behaviour. It might due to the maturity achieved and the beginning to have responsibilities as emerging adults in life. This fact supported the present study findings as the highest respondents who participated were mostly in the age range of 20 years old and above. In addition, Keskin (2018) concluded that the experiences of athletes increases with age as they learn to minimize stress by experiences and evaluation skills they gained, thus decreasing the aggressive behaviour.

Even though the overall level of aggressive behaviour is at low level, but specifically it was found that there are still certain dimensions of aggressive behaviour that showed a moderate to high level. For example anger dimension, the athletes that showed a moderate level of aggressive behaviour is higher than athletes that have low level of aggressive behaviour. There were also athletes that showed a high level of aggressive behaviour especially in verbal, hostility and anger dimensions. This indicates that athletes still have a tendency to behave aggressively even outside sports as it derived from their competitive energy during sports.

5.2 Discussion on Differences of Aggressive Behaviour based on Athletes' Gender

The findings of the present study revealed that there is no significant difference of aggressive behaviour between male and female athletes in the public university. The finding is contradictory with past studies which found that male athletes always display higher aggressive behaviour than female athletes (Coulomb-Cabagno & Rascle, 2006; Koivula, 2001; Safraoui, 2014). Researchers viewed that one of the factors that might explain these results are because there are higher female respondents compared to male respondents in this study.

Moreover, the insignificant differences might indicate that there were not much differences in terms of aggressive behaviour between female or male athletes in the public university. The result is in line with previous study by Rahimizadeh et al. (2011) which revealed that there were no differences in life aggression, assertion, sport hostile aggression and sport instrumental aggression between male and female athletes. On the other hand, Keeler (2007) quoted a suggestion from (Silva III, 1983) that as women's participation in highly competitive or contact sports increased, the differences in aggressive behaviour found between male and female might change. It shows that, with the increase of women involvement in contact sports, and as winning became invaluable, women's sports would become more violently aggressive as in men's sports. In the present study, the absence of gender differences in aggressive behaviour among athletes lend support to Silva and Smith's predictions.

The findings of the present study were also found to be contradicted to the study by Eagly and Steffen (1986) that highlighted aggressiveness and aggression are generally perceived as qualities of masculine and clearly happened to be in contrast with the characteristics of females. According to Koivula (2001) masculine typed sports are competitive sports that are suitable for male in which strength and aggressiveness are largely prevailing such as rugby and boxing while feminine typed sports are usually associated with grace and flexibility are more suitable for females. However, previous researchers denied that fact and suggested that female athletes adopted an efficient style of practice more than masculine one, thus aggression are progressively used as performance-related tools by female athletes same as male athletes in order to achieve success and victory (Nixon, 1997). This concludes that sports nowadays may have been successfully used to reduce gender stereotypes and surpassed the traditional gender roles as athletes were bound to the same rules in sports.

5.3 Differences of Aggressive Behaviour based on Types of Sports

The finding of the study indicated that athletes in contact and non-contact sports showed no differences in the tendency of inflicting aggressive behaviour when they are not in sports competition. The finding is in-line with the previous study conducted by Keeler (2007) which found that there are no differences in type of sports on certain aspects of aggressive behaviour such as instrumental, hostile, and life aggression or assertion. Ahmadi et al. (2011) indicates that only certain dimensions of trait in aggressive behaviour like anger and state-anger have a positive correlation with contact and non-contact sports. Basically, the aggressive behaviour inflicted outside the sports competition is not only affected by the types of sports that athletes play on field but can be affected by other factors such as races, context of retaliation and depending on the situational circumstances. This statement is also proposed by O'Brien et al. (2012) in the study conducted regarding athlete's aggression and delinquency which revealed that athletic behavior was not related to physical aggression off-field

Having self-control among athletes may help in controlling ruminative thinking patterns and athletes that possess a higher self-control strength will be able to focus their attention on current tasks to make appropriate decisions, thus decreasing aggression (Furley, Bertrams, Englert, & Delphia, 2013). The other probable factor that contributed to the findings is that perhaps the athletes have a high self-control that enables them to focus their attention and block any negative thoughts that can affect them when outside sports competition. As stated by Manuel Sofia and Cruz (2015) in their study that having a higher level of self-control in every athlete seems to be better in controlling aggression tendency and able to overcome selfish impulses and act in a socially desirable way.

5.4 Limitations and Recommendation

One of the limitations of this research is the small population of study which is only limited to athletes in one public university. Other athletes from different higher institutions or from other universities may be behaving differently when they engage in these kinds of sports, thus might change in terms of the aggressive behaviour itself. Age range, level of achievement and other demographic factors could be changed in future to widen the scope of the research and get different perspectives of feedback in terms of aggressive behaviour.

The current study only focused on university athletes. It would be different if this research were carried out using respondents from high school settings or even the professional settings involving professional athletes. Studies on different levels of competition would provide yet another basis for comparison between groups on aggression tendencies. In addition, the present study is only limited to identifying the level and differences in aggressive behaviour among athletes. In future research, other dimensions of variable and aggressive aspects can be widened to study about different perspectives of aggression and its relationship to other variables such as sports achievement and sense of belonging to explore the factors and effects of aggressive behavior among athletes in college settings.

There are few recommendations based on the findings of current study. Firstly, this study shows that University's Sports Excellence as the administration for sports and the body that controls sports events should consistently emphasize on the athletes' well-being, emotional control and disciplines as those factors are essential to maintain a good mental state even in an off-field situation. Even though the aggressive level among athletes is at a low level, it can turn into serious issues if this matter took for granted. Therefore, it is suggested that University's Sport Excellence could provide a special unit that collaborates with stakeholders to improve the student's sport achievement and maintain positive attitude or behavior. It is the responsibility of every athlete to know and understand their own behaviour and capabilities and being able to overcome them by channeling it to a better and right place. It is true that aggressive behaviour can leave a negative impact on others and the person itself but in the context of sports, aggressive behaviour is also needed as long as it is used in the right time.

■6.0 CONCLUSION

The purpose of this study is to identify the level of aggressive behaviour among athletes in a public university, and to study the differences of aggressive behaviour based on gender and types of sports. The results of the study shows that even though most of the athletes have low levels of aggressive behaviour, there are still some athletes who show moderate to high levels of aggressive behavior. In addition, it was proved that there were no significant differences found in aggressive behaviour based on gender and types of sports. Athlete aggression is an important topic of research because aggression that is sanctioned in sports may not be acceptable outside sport. This study suggests that instead of gender differences and types of sports, there might be other factors that might be related significantly to aggressive behavior of athletes when they are not competing in sports. Aggression can be viewed as a normal and even positive quality in athletes, when kept under control and not used as a means to an end, it can become a way to achieve a competitive advantage. But, in the other way if aggression is not controlled when the competitive event ends it can lead to more catastrophic conditions that involve the athletes' surroundings.

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